LIGHTING POWER DENSITY INFORMATION

The Building Area Method

The Building Area Method may be used only for:
An entire building (using the primary occupancy), or;
Single, independent, and separate occupancies in a multi-occupancy building.

Basic Steps to determine the Interior Lighting Power Allowance using the Building Area Method:

1. Calculate the Gross Lighted Area (GLA) for the building;
2. Determine the building type from Table 805.5.2 (or use a reasonable equivalent if the specific building type is not listed);
3. Read the Lighting Power Density (LPD) from the Table for that building type, then;
4. Calculate the Interior Lighting Power Allowance as the product of GLA x LPD.

Space-by-Space Method

The Space-by-Space Method is similar to the Building Area Method except that compliance is demonstrated for individual spaces in the building. The Space-by-Space Method may be used for any building or portion of a building.

Basic Steps to determine the Interior Lighting Power Allowance using the Space-by-Space Method:

1. Determine Gross Interior Lighted Area (GILA) for each space type
2. Look up power allowance for each space type in Table 805.5.3
3. Multiply LPD by Gross Interior Lighted Area for each space type
4. Calculate the Interior Lighting Power Allowance as the sum of Step 3. for all spaces in the building

Area Measurement

Gross Lighted Area (GLA) used in the Building Area Method
The square footage is measured from the outside surface of exterior walls, or from the outside surface of exterior walls to the centerline of walls between building types.

Gross Interior Lighted Area (GILA) used in the Space-by-Space Method
The square footage is measured from the outside surface of exterior walls to the centerline of walls between interior partitions. The sum of the Gross Interior Lighted Area equals the Gross Lighted Area

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Calculating the Interior Lighting Power

The Interior Lighting Power includes the power used by lamps, ballasts, current regulators, and control devices.

Note: most of the time the power used by control devices is zero or so small it can be ignored

If two or more independent systems in a space are controlled so that they cannot operate simultaneously, then the Interior Connected Lighting Power may include only the system with the highest wattage. (e.g. - restaurant or theater cleaning lights)

Interior Connected Lighting Power is calculated for the building design and includes all permanently installed lighting. It does not normally include lights, which are plugged in or integral to equipment or moveable furnishings (such as office cubicles.) unless that lighting is included in the lighting design.

The following lighting is exempt from the LPD requirements:

- Specialized Medical, Dental, and Research Lighting
- Professional Sports Arena Playing Field Lighting
- Display lighting for exhibits in galleries, museums and monuments.
- Guestroom Lighting in hotels, motels, boarding houses, or similar buildings.
- Emergency Lighting that is automatically off during normal building operation.

Calculating Luminaire Wattage

Luminaire	Use
Screw-base sockets	Maximum labeled wattage of Luminaire
Low Voltage Lighting	Wattage of transformer supplying system
Line Voltage Track Lighting	The greater of 30 W per linear foot or maximum labeled wattage of all fixtures
All other Luminaires	Must use manufacturer data (e.g. - luminaires with ballasts must use the wattage of the lamp/ballast combination)

LIGHTING POWER DENSITY INFORMATION

Comparison of the Two Methods

Power Allowances under the two methods are similar for buildings with typical space distributions, but may vary depending on the space distributions in particular buildings. In general the Building Area Method is easier to use than the Space-by-Space Method, but the Space-by-Space Method offers greater flexibility. In addition, the Space-by-Space Method allows the use of the Additional Interior Lighting Power Allowance for certain specific uses.

Additional Interior Lighting Power Allowances

Additional power is allowed for:

- Decorative luminaires (1.0 W/ft²)
- Retail display:
    - 1.6 W/ft² for regular applications
    - 3.9 W/ft² for fine merchandise

Note: the Additional Interior Lighting Power Allowance may only be used for the designated luminaires; the wattage may not be applied to the general lighting design. It can be consider a “use-it-or-loss-it” allowance. This additional allowance can only be used for a specific purpose, and cannot be traded off to the general lighting allowance.